NMCI Deployable Seat

Administrator's Aide to Configuring Network Settings for Joining a Deployed Network Domain

For

Prepared By

SAIC®
An Employee-Owned Company

Task Number
0107-1053

Date
12/16/2002

Distribution List		
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Revision History			
Version	**Date**	**Author**	**Comments**
0.1	10/23/2002	Bill Noble and Jeff Chramosta	Initial Draft
0.2	10/29/2002	Jeff Chramosta	Changes to paragraph numbering
0.3	10/29/2002	Jeff Chramosta	Changes to LMHosts Section
0.4	11/12/2002	Jeff Chramosta	Removed document from "Master Document and changed Program Officer
1.0	12/16/2002	Jeff Chramosta	Final Document

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Appendix Description Page

1.0 Introduction

The NMCI Enterprise Operating System environment is Microsoft Windows 2000 Active Directory. However, Windows NT is used in the USMC deployed environment. In preparation for the Marine Corps' transition to NMCI, MCTSSA has been tasked to perform a pilot implementation of an NMCI Seat in a deployed environment and document the procedure to accomplish this task. MCTSSA has been tasked to produce a Network Settings Configuration Document for distribution to the Fleet that describes the process necessary to configure an NMCI seat for connection to the TDN. This will be used as a guide to assist Administrators with the process that is required in order to successfully access the TDN and other Internet/Intranet based resources. This document describes the procedure of configuring NMCI Seat Network Settings for usage in a deployed environment.

1.1 NMCI CLIN 004AC Seat:

Pentium III 1 GHz Processor
256MB of RAM
Integrated Ethernet 10/100 Adapter
Integrated V.90 56K Dialup Adapter

1.2 Deployed Environment

The Marine Corps' TDN environment consists of a Windows NT Operating System. Procedure development and assessment of the operability of NMCI Seats in a deployed environment has been conducted at MCTSSA in the SIF MEF Node consisting of Windows NT PDC and BDC, Cisco Routers and Checkpoint's Meta IP DNS.

1.3 Background and Overview

This document is designed to assist the administrator with configuring Network Settings to allow TCP/IP access to the TDN.

The configuration changes that are required depend on the TDN environment that you are attempting to connect the NMCI Seat into. The following document is intended to provide a step-by-step procedure for configuring NMCI Seat Network Settings for all possible TDN configurations.

2.0 NetBIOS Name Resolution

2.1 LMHosts File and WINS

2.1.1 LMHosts File and WINS Background Information

2.1.1.1 *In TCP/IP-based networks involving routers and multiple segments, it is generally recommended that you implement WINS for NetBIOS name resolution and browsing support. WINS is the simplest way to resolve names in a Windows network in that all updates to names are handled dynamically as opposed to the static entries in an LMHosts file.*

2.1.1.2 *An alternative to WINS is to utilize LMHosts files for NetBIOS name resolution. It is possible to have full domain browsing by using only LMHosts files on all computers. Without WINS, LMHosts files are required for domain browsing, as well as other domain management issues such as database replication and domain secure channels.*

2.1.1.3 *The drawback to using an LMHosts approach to NetBIOS name resolution is that LMHosts uses a static addressing approach versus the dynamic approach of the WINS solution.*

2.1.2 WINS

2.1.2.1 Windows Internet Name Service (WINS) provides a dynamic replicated database service that can register and resolve NetBIOS names to IP addresses used on your network.

2.1.2.2 Windows NT and 2000 Server provides WINS, which enables the server computer to act as a NetBIOS name server and register and resolve names for WINS-enabled client computers on your network.

2.1.2.3 WINS is the recommended solution for resolving NETBIOS in deployed networks since it provides is dynamic in nature as opposed to the static entries that LMHosts utilizes (See paragraph 2.1.3 for information on LMHosts implementation).

2.1.2.4 If you are using WINS proceed to paragraph 3.0 (Configure Network Settings).

2.1.3 LMHosts

2.1.3.1 An LMHosts implementation requires an administrator to install an LMHosts file on all of the clients that wish to join the deployed domain as well as the Primary Domain Controller and ALL Backup Domain Controllers.

2.1.3.2 Without WINS, you need LMHosts entries that designate all domain controllers.

2.2 LMHosts File Creation

2.2.1 Create a properly formatted LMHosts

2.2.1.1 Using a text editor, such as Notepad.exe or Edit.com, create a text file (any name that you wish) with the entries shown below and save it on a floppy disk. This file will be used in Paragraph 3.1.8 of this document.

2.2.1.2 The domain name in this example is "7MEFDM", the PDC NetBIOS name in this example is "7MEFDM03", and if you have other various backup domain controllers (7MEFDM01 in this example) your LMHosts file should look like the depicted in Figure 2.2-1 below.

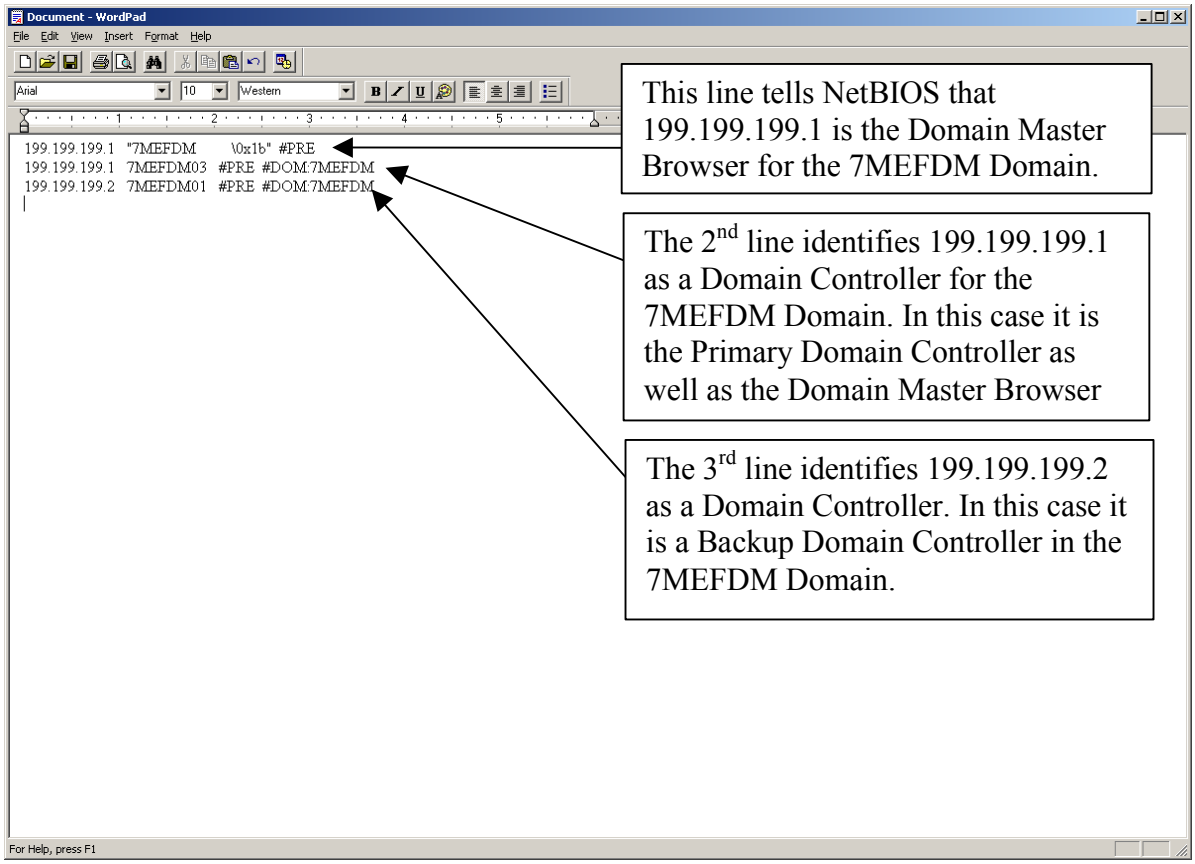

Figure 2.2-1

2.2.2 An explanation of the format of an LMHosts file is as follows:

2.2.2.1 When a computer is booted, it reads the LMHosts file entries and stores them permanently in the NetBIOS name cache until the computer is powered down. All computers in the domain need these entries for each Backup Domain Controller (BDC), as well as one for the Primary Domain Controller (PDC). Also note the exact order of #PRE #DOM, and that they are capitalized. The other names are not case sensitive.

```
199.199.199.1  DomainControllerName1   #PRE  #DOM:DomainName
199.199.199.1  "DOMAINNAME,,,,,\0x1b"  #PRE
199.199.199.2  DomainControllerName2   #PRE  #DOM:DomainName
```

2.2.2.2 The first entry allows the PDC to act as a logon domain controller for the NMCI Seat, the second entry allows the NMCI Seat browser service to explicitly find the PDC. Remember you will probably have multiple lines similar to the first line (for multiple domain controllers), but only one line with the \0x1b directive (to designate the PDC). The third line is an example of a BDC entry.

2.2.2.3 Note that on the second entry the domain name must be in quotes, and padded with spaces for a total of 15 characters before the \0x1b portion. ***(The example above shows commas for visual placeholders, however in a real LMHosts file these commas would be replaced with spaces)*** *Also be aware that moving the PDC role to another Windows NT Server (via promotion) will cause your \0x1b entry to be invalid. Options to fix this are:*

- Switch IP addresses on the controllers, so effectively the PDC always has the same address. You would not need to change anything in the LMHosts file.
- Change the \0x1b IP address in all the LMHosts files on the clients, or on the centrally distributed LMHosts file.

3.0 Network Settings

3.1 Configure Network Properties

3.1.1 My Network Places Properties

Figure 3.1-1

3.1.1.1 Locate the My Network Places icon on your Desktop (see Figure 3.1-1)

3.1.1.2 Place your mouse cursor on the icon and click the RIGHT mouse button and select "Properties …"

3.1.2 Network and Dial-up Connections

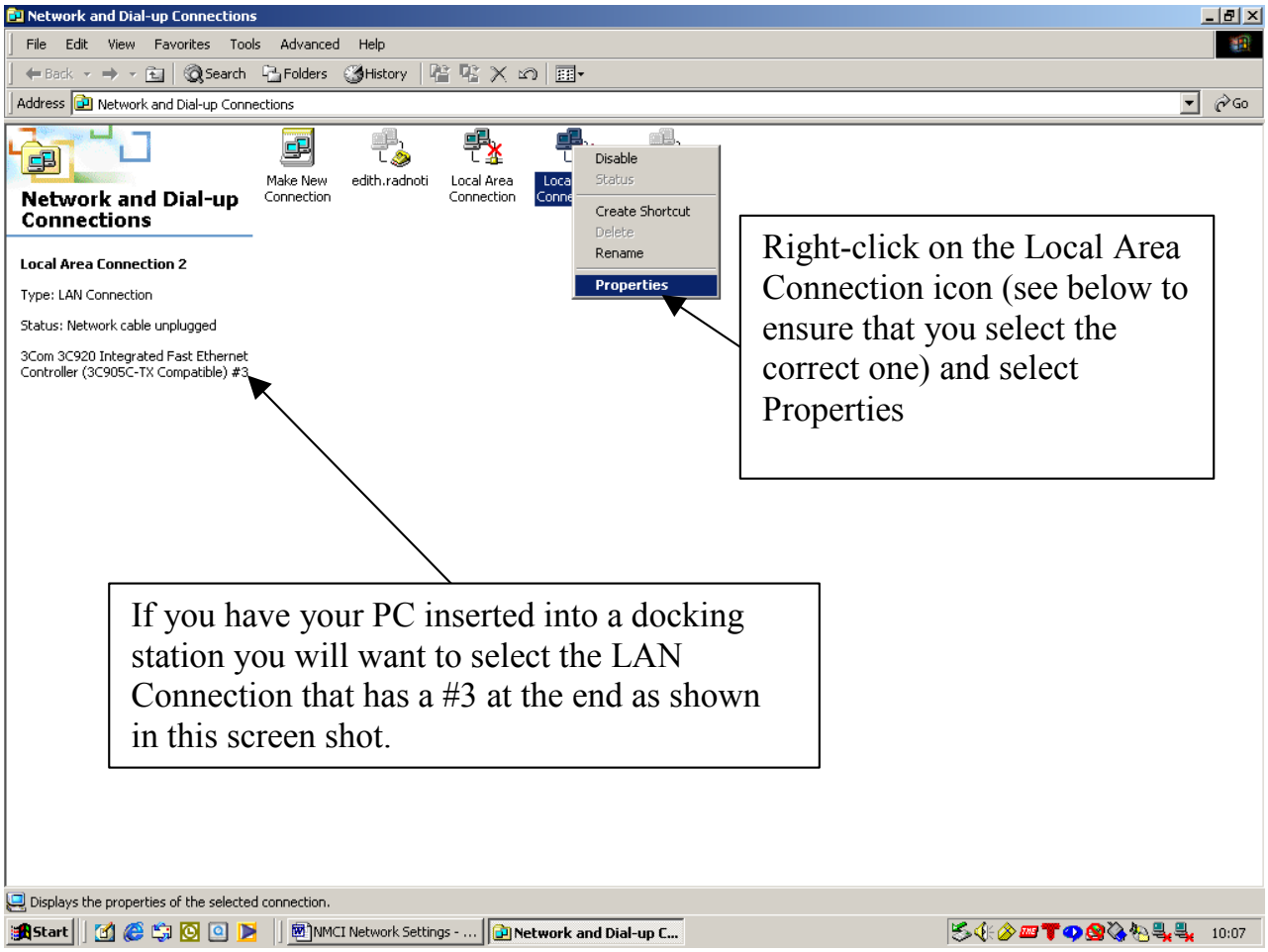

Figure 3.1-2

3.1.2.1 If 2 Local Area Connections show up you are connected to a docking station.

3.1.2.2 Select the Local Area Connection that has a "#3" at the end of the connection description as shown in Figure 3.1-2

3.1.2.3 Once you click on the correct Local Area Connection, Right-click on the Connection icon and select "Properties".

3.1.3 Local Area Connection Properties

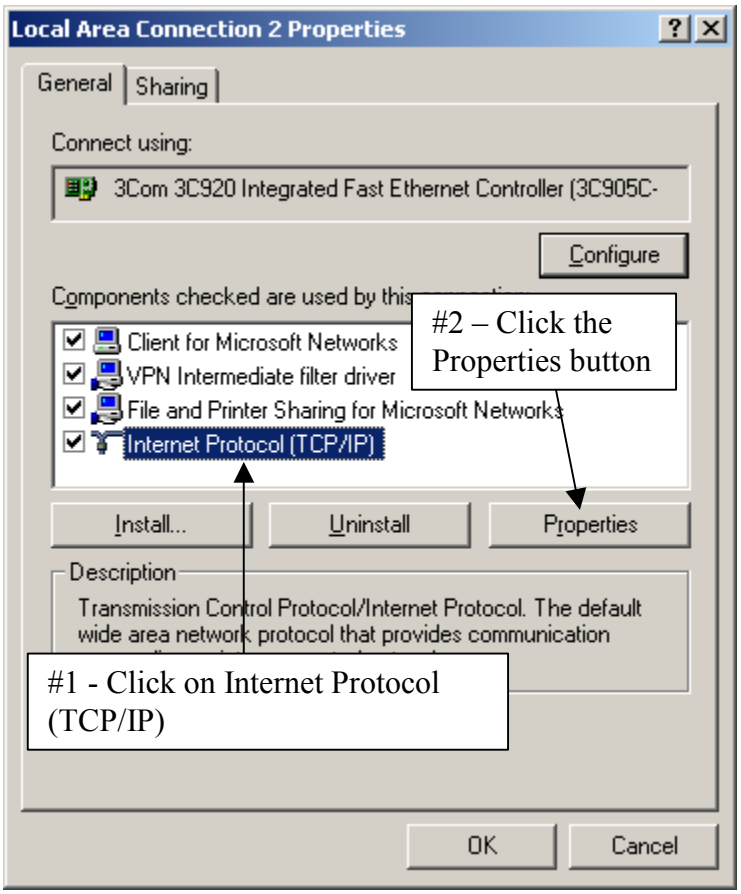

Figure 3.1-3

3.1.3.1 Click on "Internet Protocol (TCP/IP) and then click the "Properties" button.

3.1.4 Internet Protocol (TCP/IP) Properties

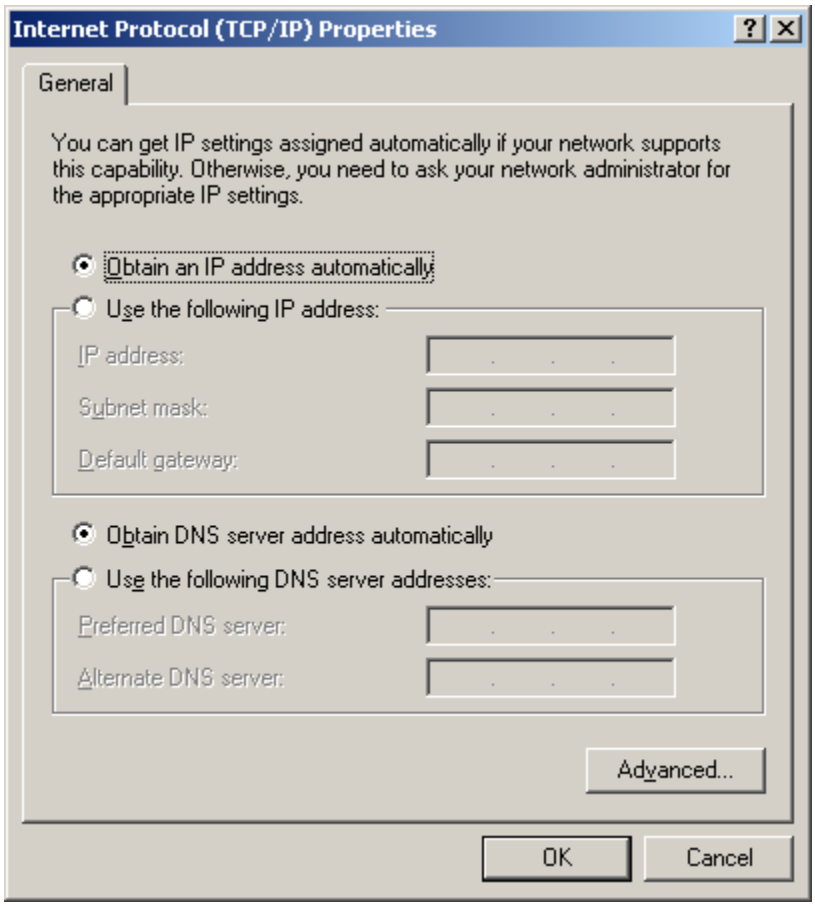

Figure 3.1-4

3.1.4.1 Your screen may or may not appear as the one shown in Figure 3.1-4, regardless of your settings at this point proceed to paragraph 3.1.5

3.1.5 Configure IP and DNS Address

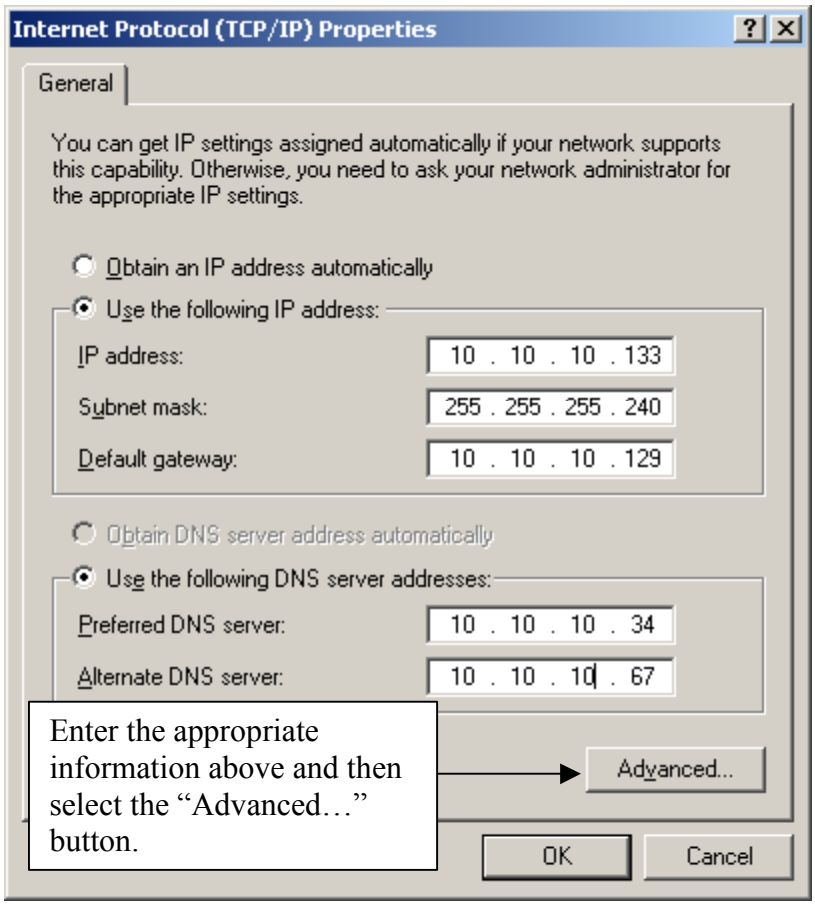

Figure 3.1-5

3.1.5.1 *The Administrator of the TDN that you are going to connect to will provide these settings.*

3.1.5.2 *In this example (Figure 3.1-5) you see that RFC 1918 (Private IP Address Space) addresses have been used since the actual IP address that was used in laboratory testing is considered sensitive information. You will not use these addresses to connect to the TDN.*

3.1.5.3 *Once you have entered in the appropriate IP Address, Subnet Mask, Default Gateway, Preferred DNS and if applicable Alternate DNS you can proceed with the Advanced Settings by clicking on the "Advanced…" button.*

3.1.6 Advanced TCP/IP Settings

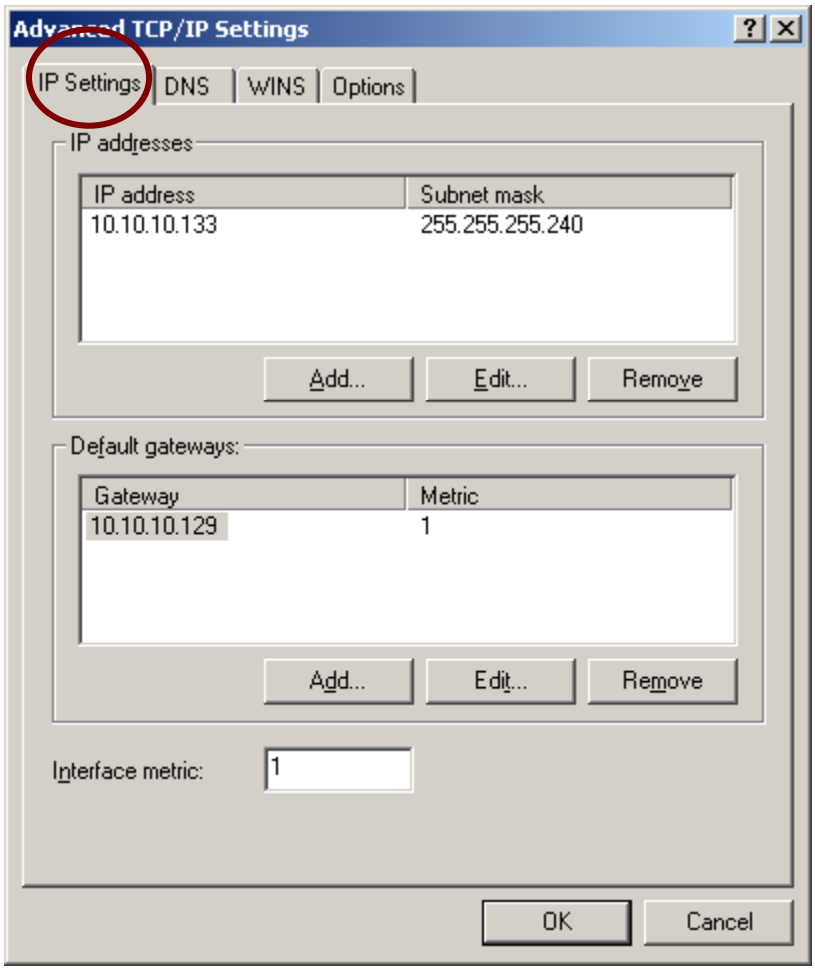

Figure 3.1-6

3.1.6.1 These IP Settings are set on the previous screen (Figure 3.1-5), click on the DNS Tab (see Figure 3.1-7)

3.1.7 DNS Settings

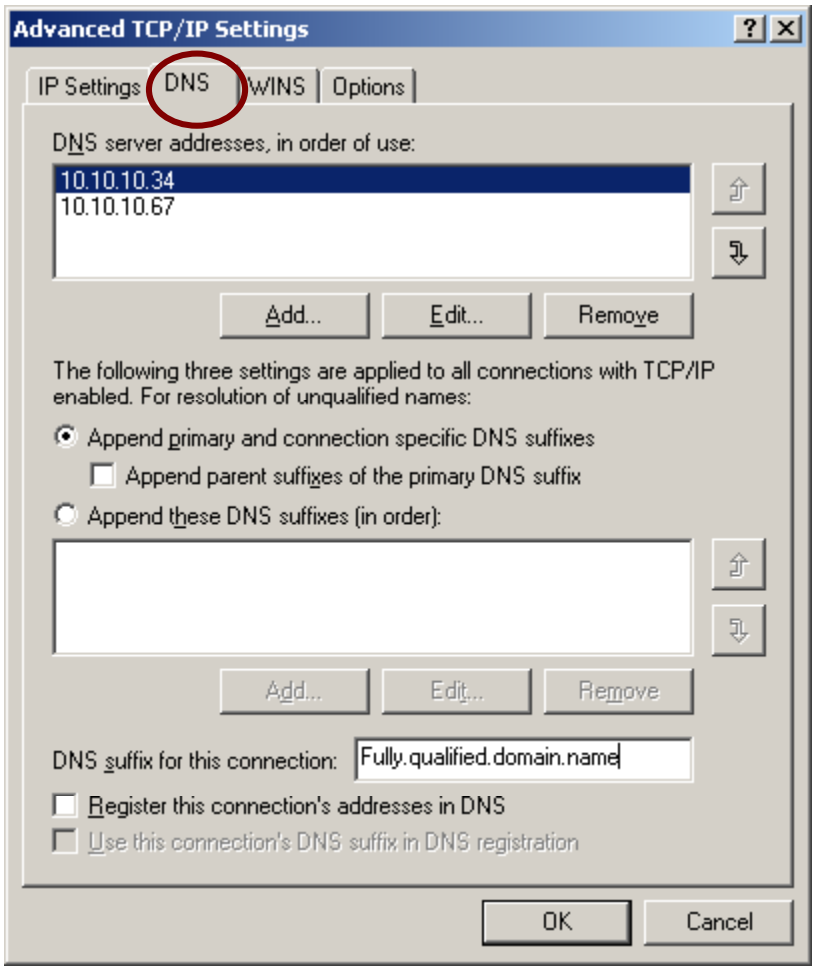

Figure 3.1-7

3.1.7.1 These DNS settings are from Figure 3.1-5, click on the WINS Tab.

3.1.8 WINS or LMHosts Settings

3.1.8.1 WINS Settings. If WINS is running in your deployed environment the following section is applicable, otherwise, you must skip this WINS Settings step and proceed to the LMHosts File Step (Paragraph 3.1.8.3)

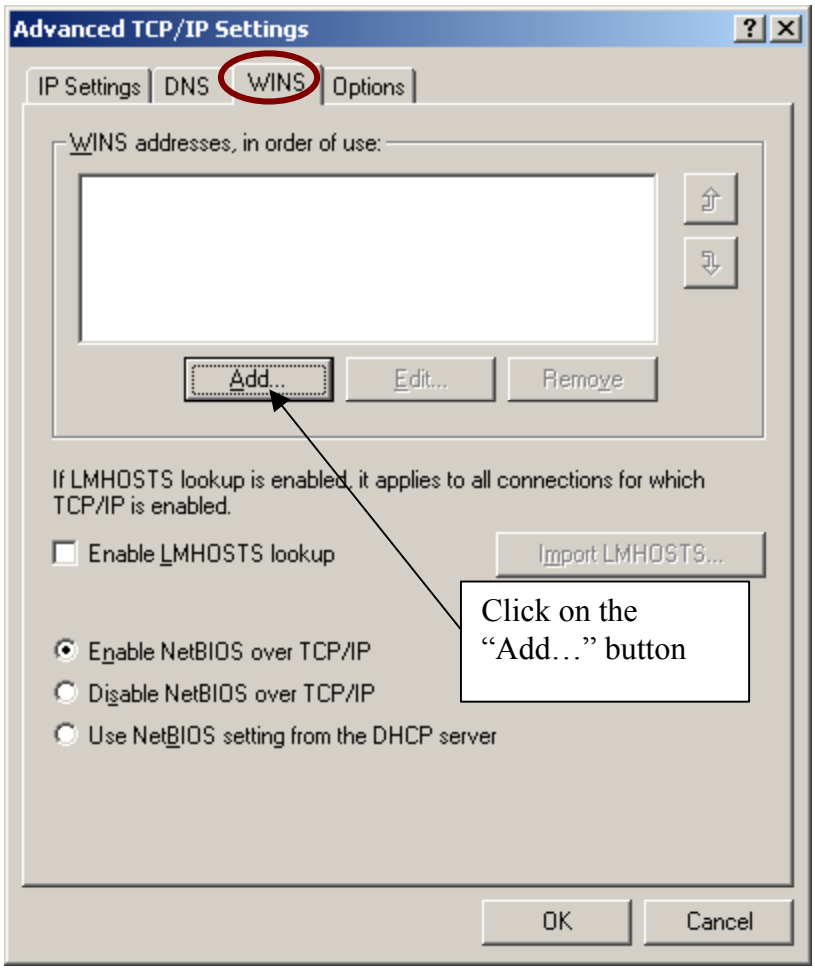

Figure 3.1-8

3.1.8.1.1 Click on the "WINS" Tab and then Click on the "Add…" button to add the IP Address/addresses of your WINS Server/Servers.

3.1.8.2 Enter the WINS Server IP Addresses

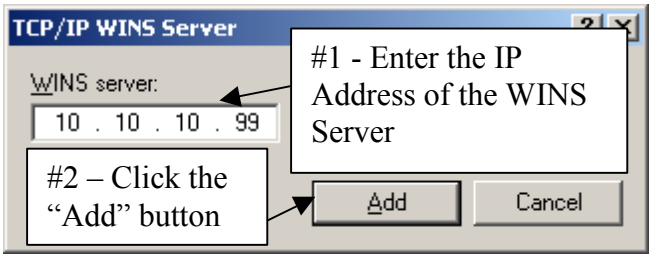

Figure 3.1-9

3.1.8.2.1 Enter the IP Address of the WINS Servers and click the "Add" Button (see Figure 3.1-9). Repeat steps 3.1.8.1.1 and 3.1.8.2.1 for all WINS Servers in your deployed network.

3.1.8.2.2 After you have entered all of the WINS Server IP Addresses click on the "OK" button as shown in Figure 3.1-10

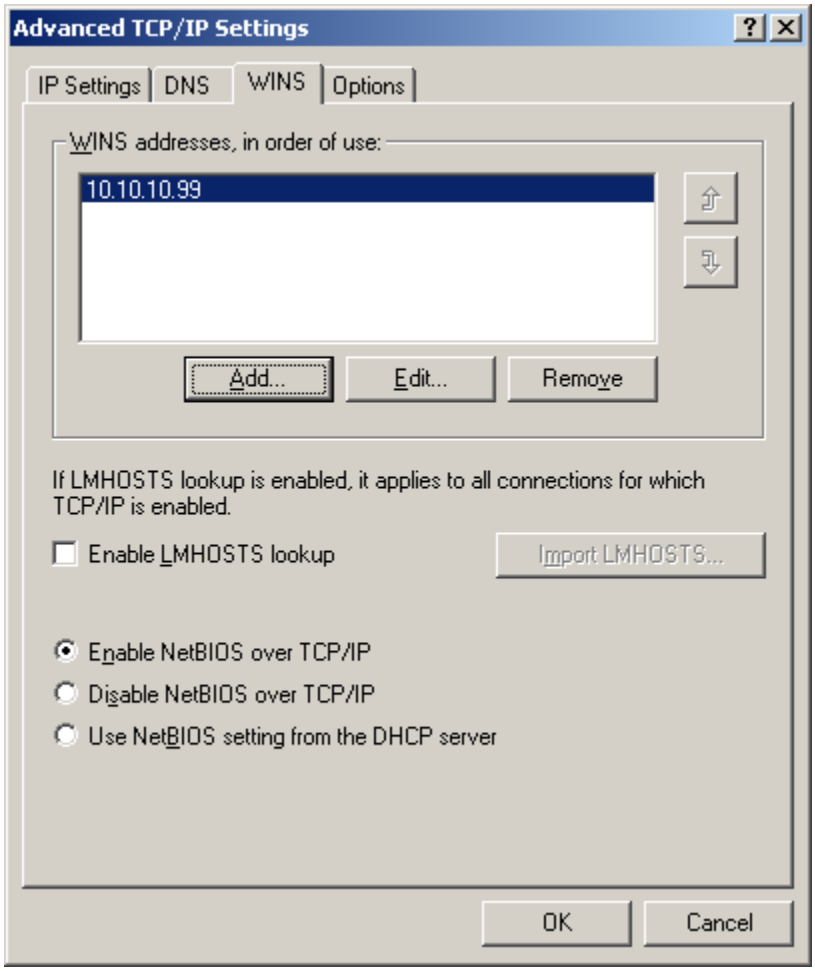

Figure 3.1-10

3.1.8.3 LMHosts Settings

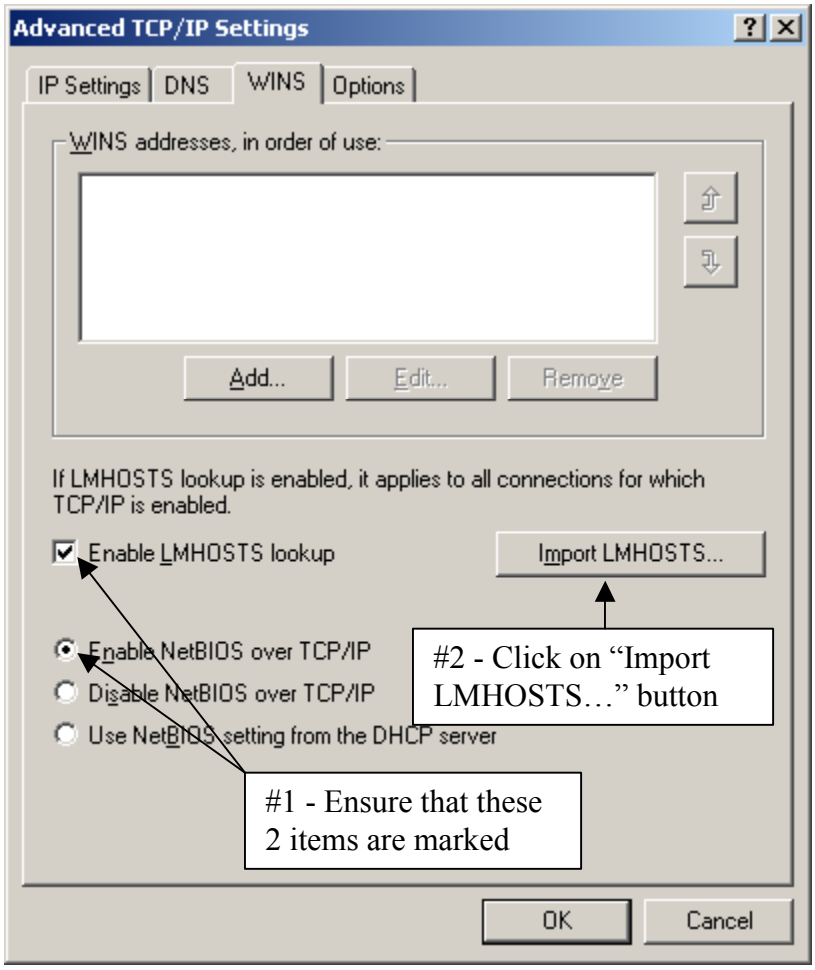

Figure 3.1-11

3.1.8.3.1 The settings shown in Figure 3.1-11 are needed if you decided to implement an LMHosts solution. Ensure that the box next to "Enable LMHOSTS lookup" has a check mark in it and that the radio button next to "Enable NetBIOS over TCP/IP" is marked. Next, click the "Import LMHOSTS…" button and proceed to paragraph 3.1.8.3.2

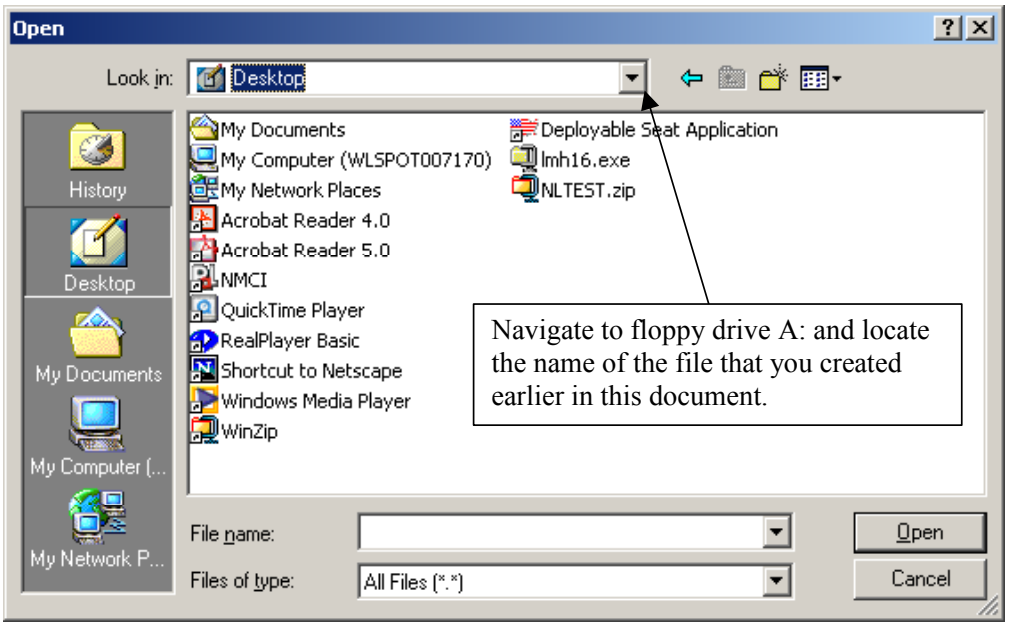

Figure 3.1-12

3.1.8.3.2 This is the screen that should appear, change your "Look in:" location to the floppy drive and insert the diskette containing the LMHosts file that you created in Paragraph 2.2 (LMHosts File Creation).

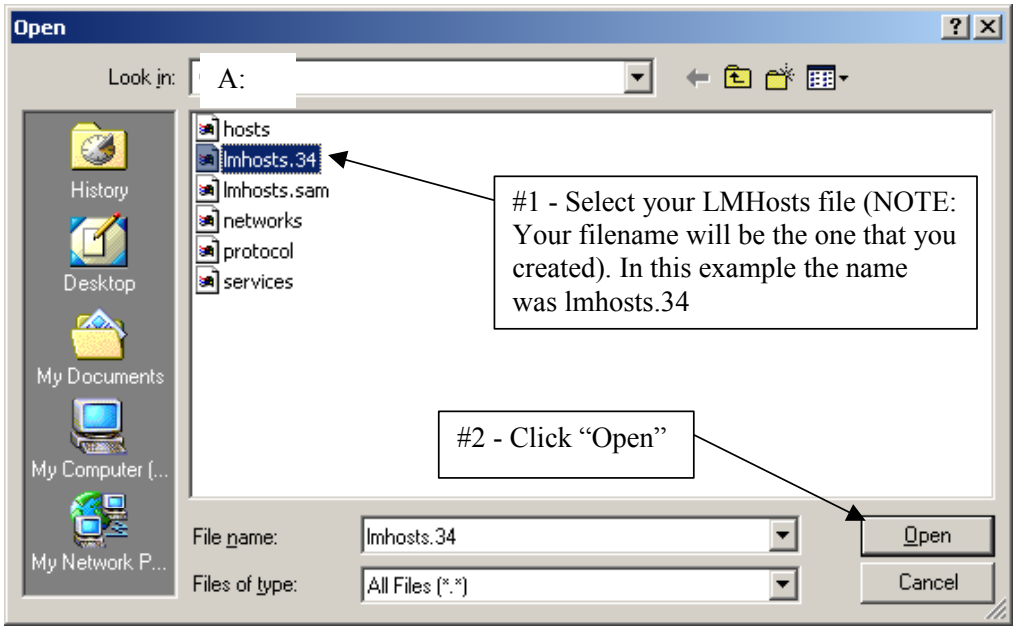

Figure 3.1-13

3.1.8.3.3 Select the LMHosts file that you created in Paragraph 2.2.1.1 and Click "Open".

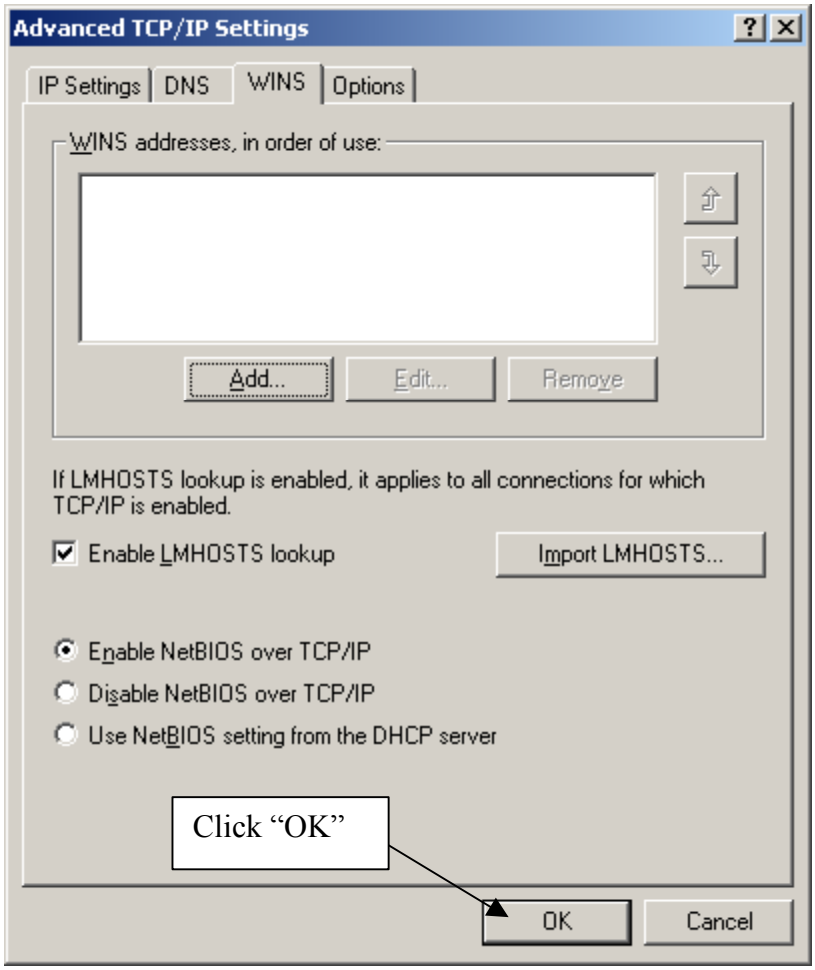

Figure 3.1-14

3.1.8.3.4 Click "OK" when Figure 3.1-14 appears on your screen.

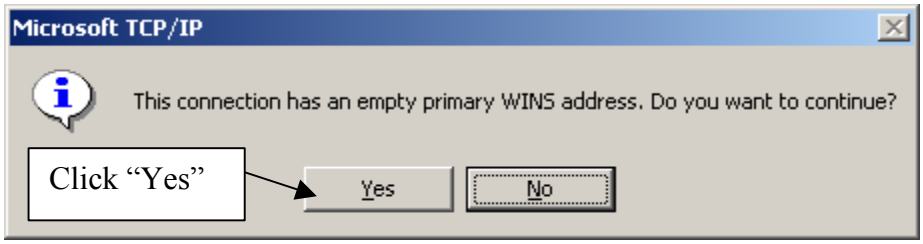

Figure 3.1-15

3.1.8.3.5 Click "Yes" when Figure 3.1-15 appears on your screen.

3.1.9 Finished with Internet Protocol (TCP/IP) Properties

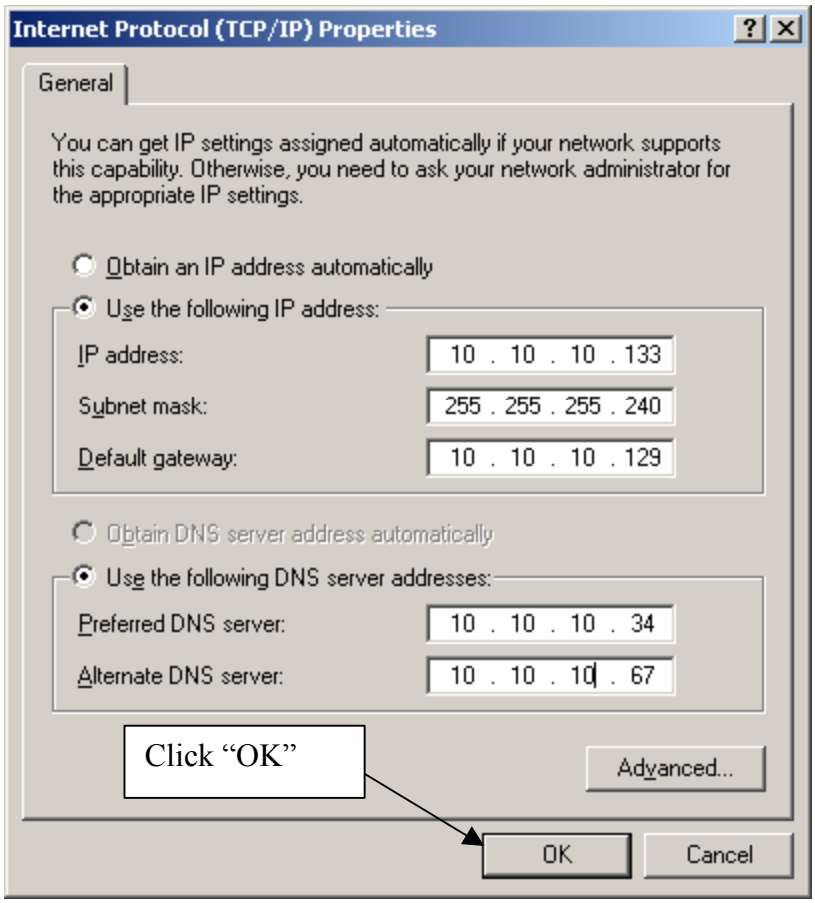

Figure 3.1-16

3.1.9.1 Click "OK"

3.1.10 Finished with Local Area Connection 2 Properties

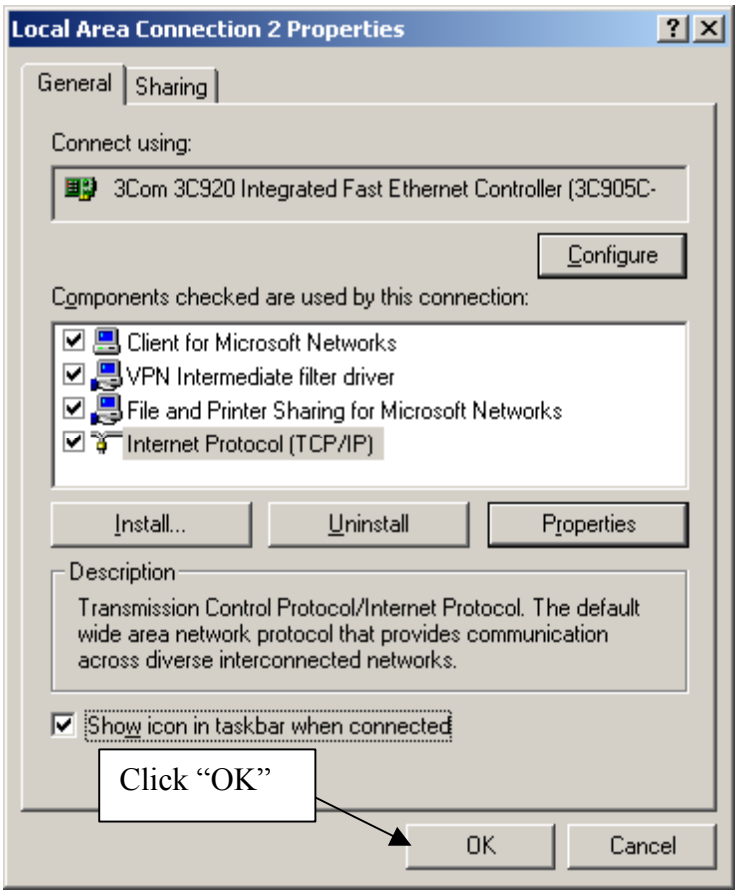

Figure 3.1-17

3.1.10.1 Click "OK"

3.1.11 Network Settings Complete

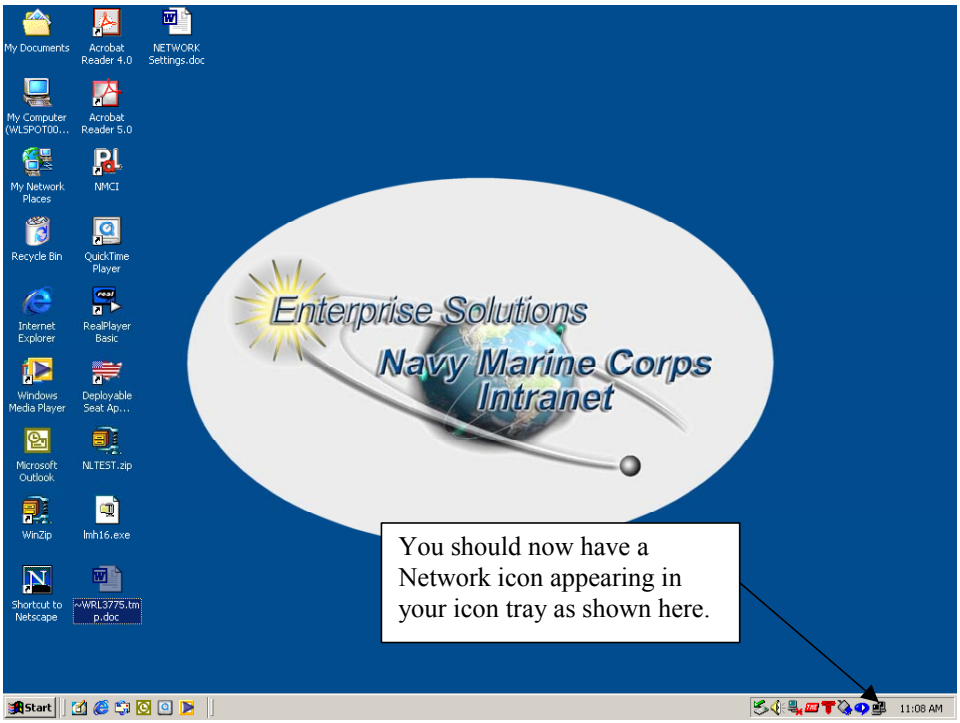

Figure 3.1-18

3.2 Verify that NetBIOS Cache is Valid

3.2.1 How to Verify Your NetBIOS Cache

3.2.1.1 Now that the LMHosts file has been Imported into the Network Configuration>WINS Settings you can verify that you've entered these correctly by opening a command window (DOS prompt) and look at your NetBIOS cache by typing in the following command:

c:\> nbtstat -c

NetBIOS Remote Cache Name Table

Name	Type	Host Address	Life [sec]
7MEFDM	<1B> UNIQUE	199.199.199.1	-1
7MEFDM03	<03> UNIQUE	199.199.199.1	-1
7MEFDM03	<00> UNIQUE	199.199.199.1	-1
7MEFDM03	<20> UNIQUE	199.199.199.1	-1
7MEFDM01	<03> UNIQUE	199.199.199.2	-1
7MEFDM01	<00> UNIQUE	199.199.199.2	-1
7MEFDM01	<20> UNIQUE	199.199.199.2	-1

TIP: the <1B> entry will not show up if you do not have exactly 20 characters inside the quote marks (counting the \0x1b), or if you do not use quotes, or if you enter the forward slash /0x1b (as opposed to \0x1b). If you do not see a <1B> entry you must return to Paragraph 2.2 and ensure that you have the correct syntax for the Domain Master Browser entry and then repeat steps 3.1.8.3 through 3.2

4.0 Join a Deployed Domain

4.1 Domain Join Process

4.1.1 My Computer Properties Configuration

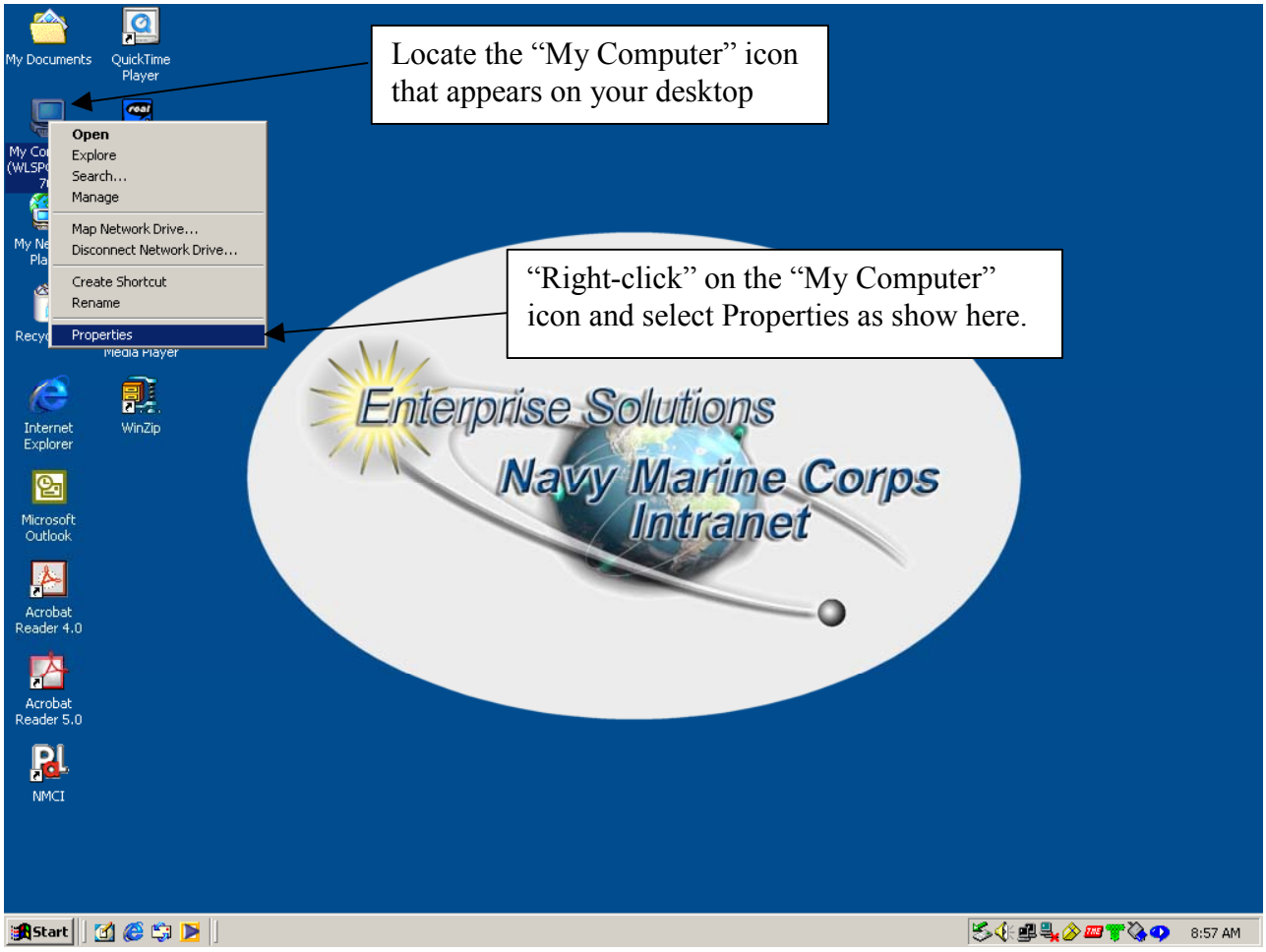

Figure 4.1-1

4.1.1.1 Locate the "My Computer" icon on your Desktop as shown in Figure 4.1-1

4.1.1.2 Right-click on the "My Computer" icon and select "Properties"

4.1.2 System Properties

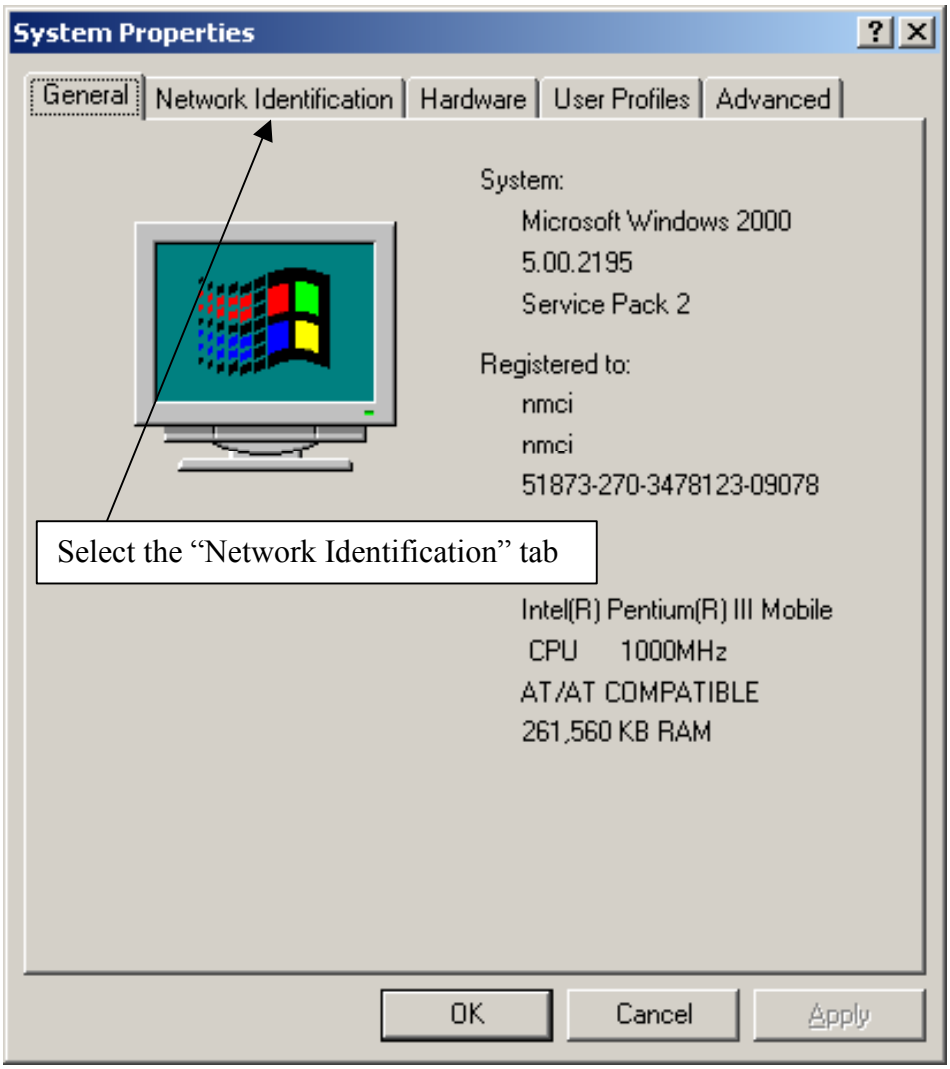

Figure 4.1-2

4.1.2.1 The Screen shown in Figure 4.1-2 will now appear. Click on the "Network Identification" tab.

4.1.3 Network Identification

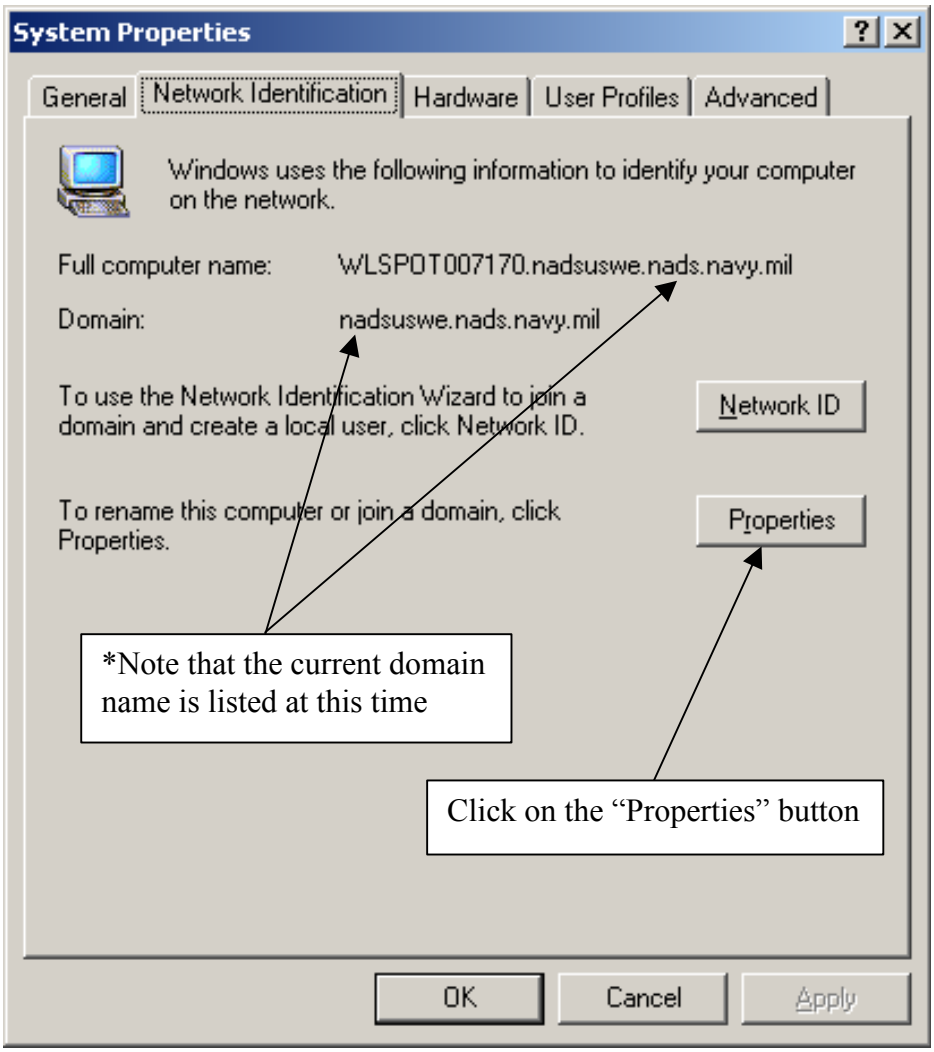

Figure 4.1-3

4.1.3.1 For informational purposes note that the current domain name is listed on this screen.

4.1.3.2 To change this information, click on the "Properties" button and proceed to Paragraph 4.1.4 (Identification Changes).

4.1.4 Identification Changes

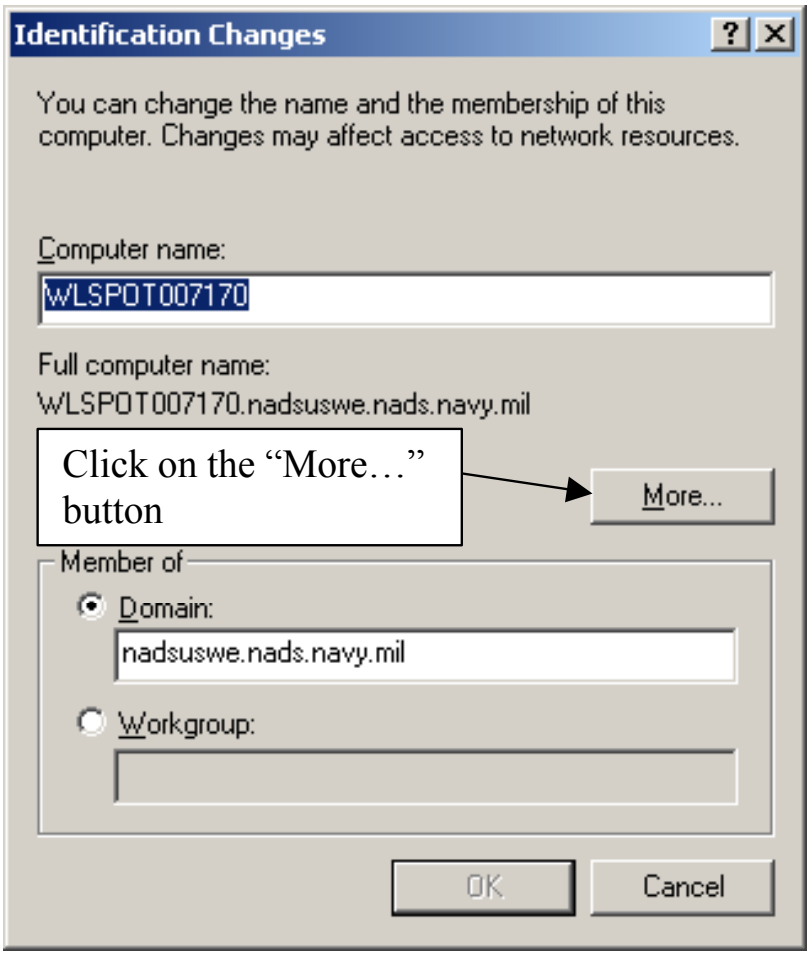

Figure 4.1-4

4.1.4.1 Click on the "More…" button to change the "Full computer name" as shown in Figure 4.1-4

4.1.5 DNS Suffix and NetBIOS Computer Name

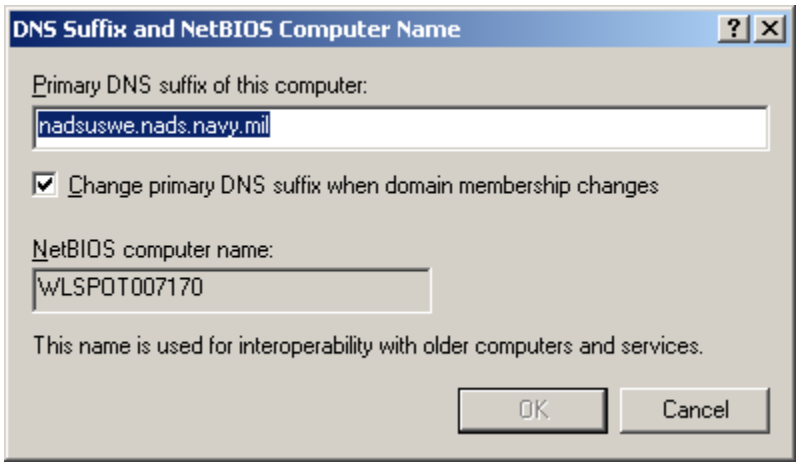

Figure 4.1-5

4.1.5.1 *The "Primary DNS suffix of this computer" shows the old domain name. Change the domain name as shown in Figure 4.1-6 and click the "OK" button.* ***Enter the fully qualified domain name for the domain that you are attempting to join. "7mef.sie.usmc.mil" was used in the test environment; your domain name will be different. Consult your Network Administrator for the name that applies to your environment.***

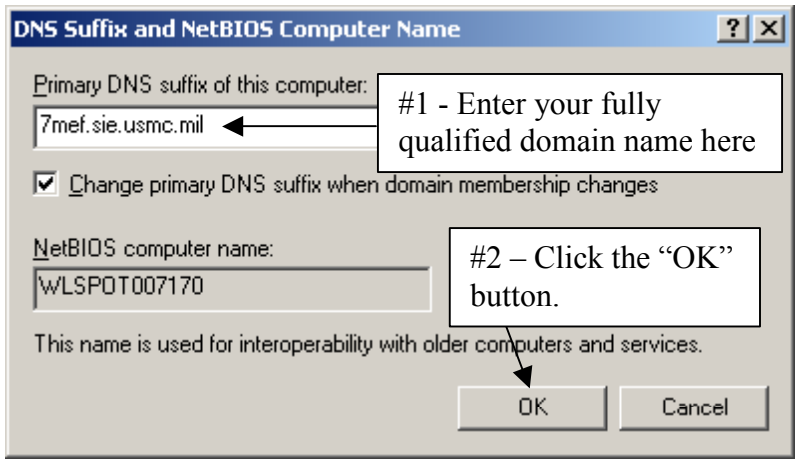

Figure 4.1-6

4.1.6 Full Computer Name is changed

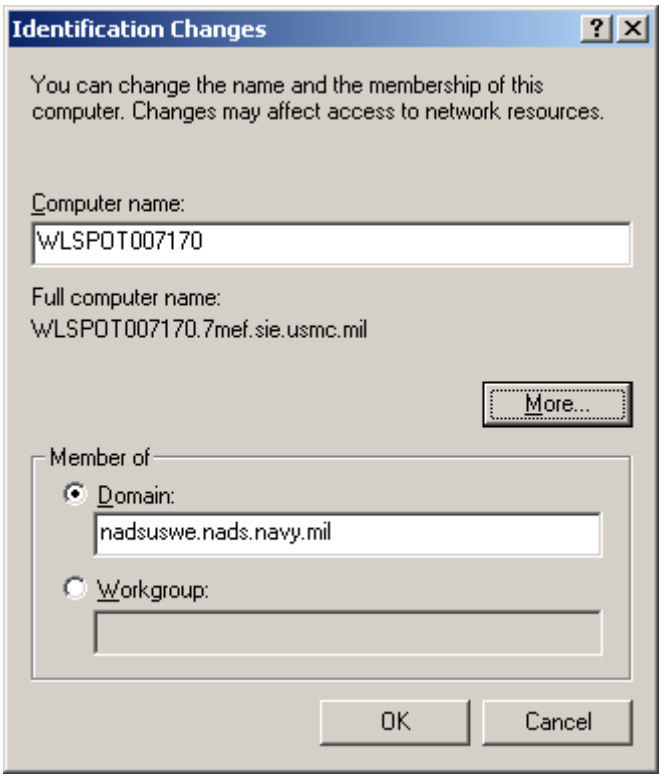

Figure 4.1-7

4.1.6.1 The next step is to change the "Domain". Figure 4.1-7 shows that the "Full computer name" has been changed but the domain name is still reflecting the old domain name. Proceed to Paragraph 4.1.7 (Change the Domain Name).

4.1.7 Change the Domain Name

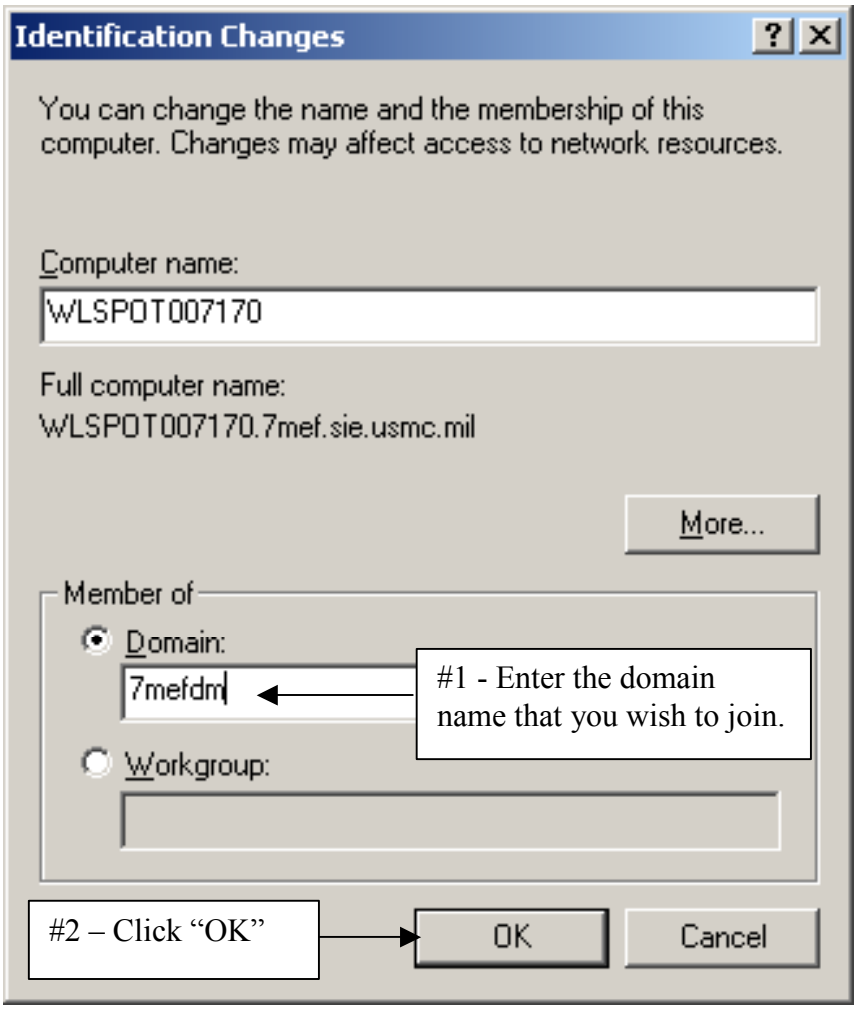

Figure 4.1-8

4.1.7.1 Enter the domain name that you wish to join in the "Domain:" field as shown in Figure 4.1-8 and then click the "OK" button.

4.1.8 Domain Username and Password

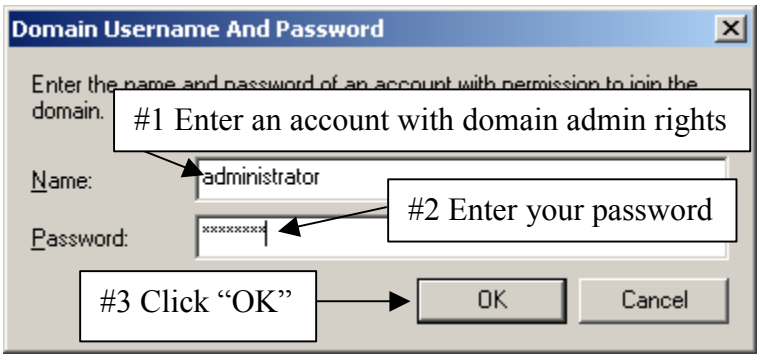

Figure 4.1-9

4.1.8.1 In order to successfully join the domain you must be an administrator on the domain that you are attempting to join.

4.1.8.2 Enter your administrator name in the "Name:" field as shown in Figure 4.1-9

4.1.8.3 Enter your password for this account in the "Password:" field.

4.1.8.4 Click the "OK" button.

4.1.9 Possible Error

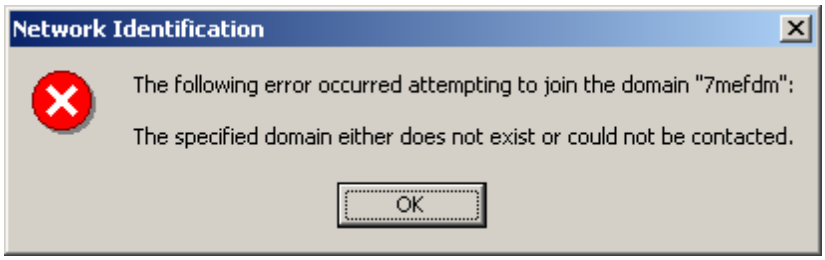

Figure 4.1-10

4.1.9.1 *It is possible that you might receive the error shown in Figure 4.1-10 after entering you username and password.*

4.1.9.2 *This error is due to a problem with NetBIOS name resolution.*

4.1.9.3 *If you receive this error click the "OK" button and return to Paragraph 2.0 (NetBIOS Name Resolution). Ensure that you have configured either WINS or LMHosts as described in this section.*

4.1.10 Welcome to the Domain Screen

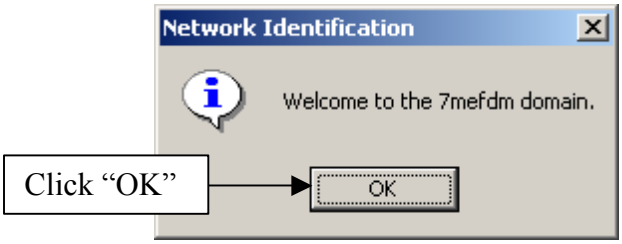

Figure 4.1-11

4.1.10.1 If you receive the "Welcome message" as shown in Figure 4.1-11 it means that your machine has successfully joined the deployed domain.

4.1.10.2 In order to log into the domain as a user requires a system restart.

4.1.10.3 Click the "OK" button and complete the following steps in order to logon to the domain.

4.1.11 Reboot Message

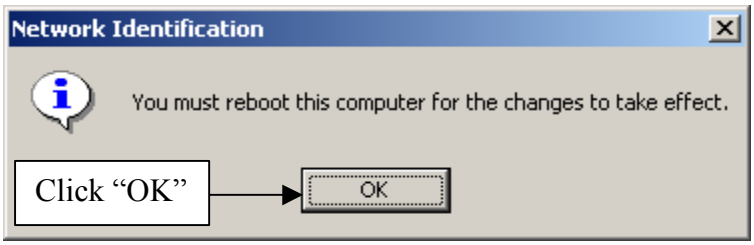

Figure 4.1-12

4.1.11.1 Click the "OK" button.

4.1.12 System Properties Configuration Complete

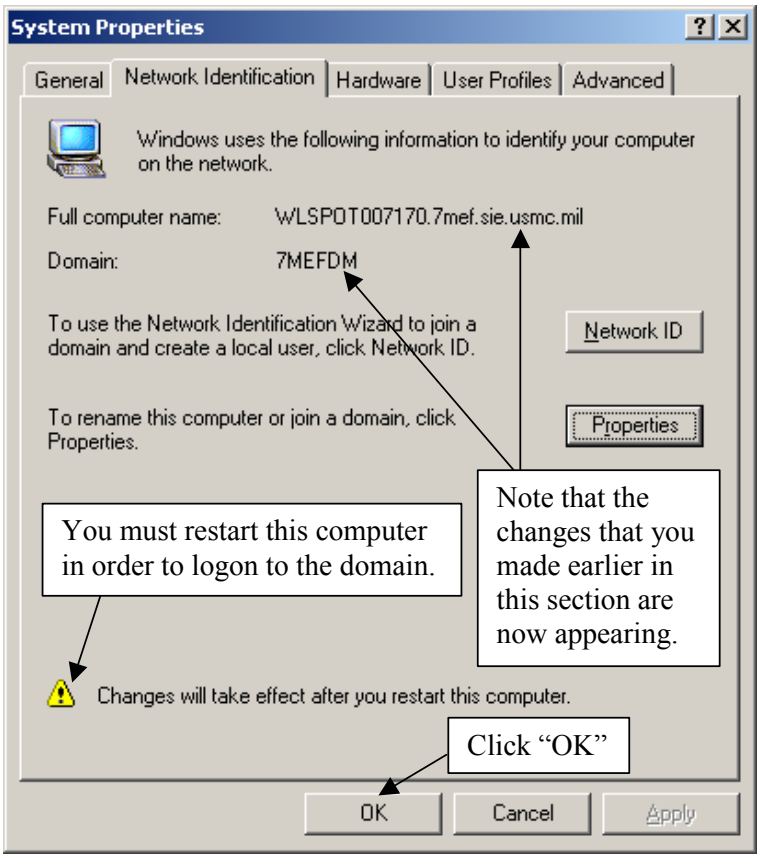

Figure 4.1-13

4.1.12.1 Your System Properties configuration is complete; Click the "OK" button.

4.1.13 System Settings Change Notification

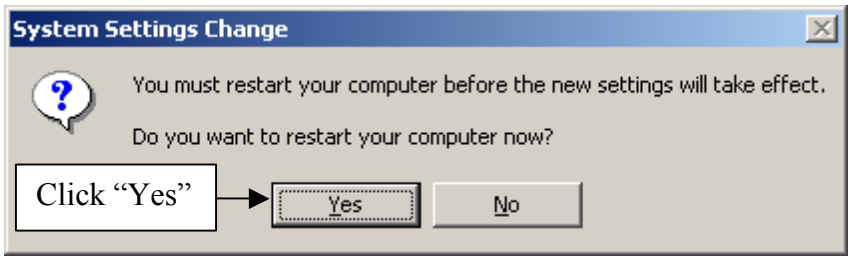

Figure 4.1-14

4.1.13.1 Click the "Yes" button to restart your computer. Remember to change your domain on the logon screen from the Local Computer to the deployed domain.